# Hazardous Waste Injections Will Continue Under Proposal

**AK Steel Land Ban Exemption**

Middletown, Ohio June 2008

### Comments welcome

EPA encourages comments on its proposal to allow AK Steel Corp. to continue injecting hazardous waste deep underground. The comment period closes August 5, 2008. Submit comments in writing to:

**Rebecca Harvey**
EPA Region 5 Water Division
77 W. Jackson Blvd. (WU-16J)
Chicago, IL 60604-3590
312-886-6594, harvey.rebecca@epa.gov

Call Region 5 toll-free at 800-621-8431 weekdays, 9 a.m. to 5:30 p.m.

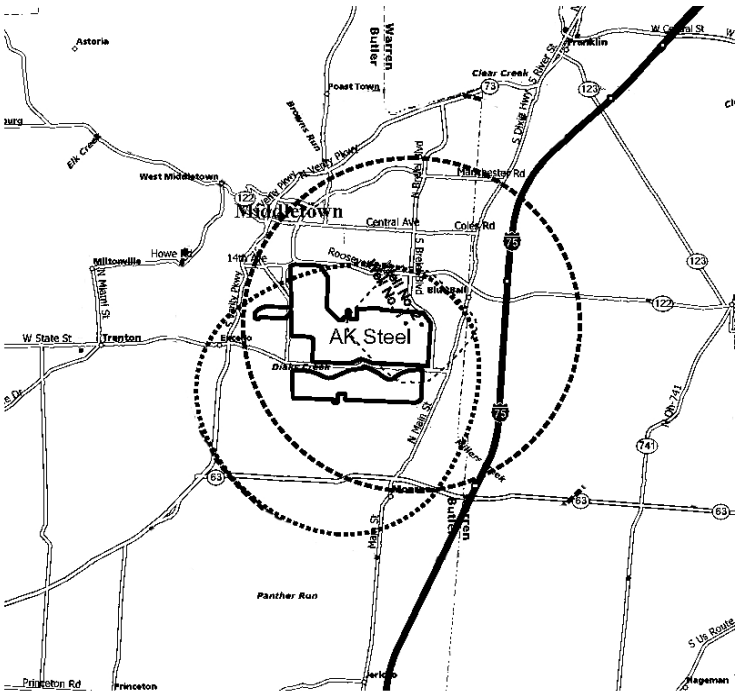
### Informational meeting and public hearing scheduled

EPA will hostan informational meeting that will feature a brief presentation and a question-and-answer period. A formal public hearing will follow, with an opportunity to make oral comments that will be recorded by a certified court reporter.

July 21, 2008
6-7 p.m. – Informational Meeting
7-9 p.m. – Public Hearing
City of Middletown Council Chambers, One Donham Plaza, Middletown, Ohio

If there is not enough interest in these sessions, they will be cancelled. If you are interested in attending, please contact: **Stephen Roy,** 312-886-6556, roy.stephen@epa.gov

You may view the proposed decision and factsheet online at www.epa.gov/region5/water/uic/pubpdf/AK_factsheet.pdf or at: Middletown Library, 125 S. Broad St. You may view the Administrative Record, including all data submitted by AK Steel, at the Region 5 office at the address above. If you wish to visit the Region 5 office, please contact Dr. Roy ahead of time.




**Legend**

- AK Steel facility boundary
- Radius of Zone of Endangering Influence 2.52 miles.
- 10,000-year plume migration as modeled: 3.55 miles.

AK Steel Corp. of Middletown, Ohio, would be allowed to continue injecting hazardous waste deep beneath the earth surface under a proposal by U.S. Environmental Protection Agency Region 5. AK Steel has two injection wells operating at 1801 Crawford St. in Middletown under permits from Ohio EPA. Those permits allow the company to inject only waste from steelmaking processes known as "steel pickling" and galvanizing.

After reviewing AK Steel's request for the exemption, EPA found the company had shown that injected waste will stay in deep rock formations for at least 10,000 years, and that it will not threaten any underground sources of drinking water.

EPA Region 5 plans to grant AK Steel an exemption from the federal ban on disposal of hazardous waste through injection wells. This step would essentially renew an EPA exemption originally approved in 1990. The renewal would be valid for 10 years.

### Background

Federal law prohibits the disposal of untreated hazardous waste on the land or into an injection well. To qualify for an exemption, a person or

company must submit a petition demonstrating that the injected waste will stay in the injection zone for as long as it remains hazardous.

AK Steel submitted such a petition to EPA on March 6, 2006. They sent revisions Aug. 9 and Dec. 12, 2007. EPA reviewed the petition, its revisions and other materials, and determined that AK Steel demonstrated – with a reasonable degree of certainty – that waste injected through the two wells will not move out of the injection zone or contaminate an underground source of drinking water within 10,000 years.

## Technical information

Wells of this type – which EPA calls Class I wells – must be in areas that are geologically suitable. AK Steel provided geologic, hydrologic and geochemical information, as well as test data and logs from the existing wells to show that the facility is located at a geologically suitable site.

The two wells are pumping waste into the lower Eau Claire Formation, Mt. Simon Sandstone and upper Middle Run Sandstone. The "injection interval" is from 2,900 to 3,296 feet below the surface. The deepest supply of drinking water in this area is just over 500 feet down, so the waste is more than 2,000 feet below the potential source of drinking water.

Just above the injection interval is the "arrestment interval," which lies from 2,423 to 2,900 feet below the surface. This layer of rock prevents the waste from moving up. There are no faults in the rock through which waste might seep upward. Over the arrestment interval is the "confining zone," which provides additional protection. This is a layer of solid rock 1,251 feet thick known as the Knox Dolomite. All these formations extend for hundreds of square miles.

Ohio is an area of low seismic risk. Midwestern earthquakes are widely scattered and have epicenters far below the injection reservoir. There is virtually no possibility of damage to the wells or leakage of waste from the injection zone as a result of seismic activity.

All Class I wells have an "area of review." In this case, the area of review extends 2.6 miles from the injection wells (see map, Page 1). If there are other wells in the area of review that reach the injection zone, waste under pressure could contaminate supplies of drinking water by moving up through a well near the injection site, or through an abandoned well that was improperly plugged. AK Steel's petition shows there are no additional wells within the area of review.

Finally, the injection wells must pass an annual pressure test and a radioactive tracer survey to confirm that injected fluids cannot move upward along the well bore, out of the injection zone. These tests demonstrate the mechanical integrity of a well's long string casing, injection tubing, annular seal and bottom hole cement. Both wells passed these tests in June 2007.

## Conditions of Petition Approval

This proposed reissuance of the exemption is subject to conditions. If AK Steel does not comply, EPA will terminate the exemption. AK Steel must petition EPA for approval of any changes in the conditions.

- All regulatory requirements in 40 CFR Section 148.24 are incorporated by reference.
- The exemption applies to the two existing injection wells, Well No. 1 and Well No. 2.
- Injection is limited to that part of the lower Eau Claire Formation, Mt. Simon Sandstone, and upper Middle Run Sandstone at depths between 2,900 and 3,296 feet below the surface (referenced from an 8-foot Kelly bushing).
- Only waste code K062 may be injected.
- Maximum concentrations of chemical contaminants that are hazardous at less than one part per million include chromium (1,200 mg/L), hexavalent chromium (1,200 mg/L), lead (1,000 mg/L) and nickel(542 mg/L).
- Specific gravity of the injected waste stream must range from 1.00 to 1.30.
- Volume injected in any month through both wells must not exceed 390,000 gallons.
- Exemption is approved for the 10-year modeled injection period, which ends Oct, 1, 2017.
- AK Steel must give EPA a quarterly report containing the fluid analyses of the injected waste which shall indicate the chemical and physical properties upon which the no-migration petition was based, including the levels of constituents listed in Condition 5.
- AK Steel must give EPA an annual report containing results of a bottom hole pressure survey (fall-off test) performed on either well, which will be performed after shutting in the well long enough to allow the pressure in the injection interval to reach equilibrium, in accordance with Section 146.68(e)(1). The annual report will include a comparison of reservoir parameters determined from the fall-off test with parameters used in the approved no-migration petition.
- AK Steel must comply with Ohio EPA Permits UIC 05-09-001-PTO-I and UIC 05-09-002-PTO-I. Upon expiration, cancellation, reissuance or modification of these permits, this exemption is subject to review. A new demonstration may be required if information shows the basis for granting the exemption is no longer valid under 40 CFR Sections 148.23 and 148.24.